

IN THE UNITED STATES PATENT AND TRADEMARK

In Re : Mathieu Gagne and Yuval Ofek
Serial No. : 10/752,256
Filed : January 6, 2004
FOR : METHOD AND APPARATUS FOR CASCADING DATA
THROUGH REDUNDANT DATA STORAGE UNITS
EXAMINER : Mark A. Radtke
ART UNIT : 2165

DECLARATION OF DOUGLAS E. LECRONE

1. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.
2. I have been employed by EMC Corporation since 1993 and currently hold the title of Senior Director, zSeries Software Development
3. I am a sole and/or joint inventor in over 25 issued United States patents including U. S. Patent No. 6,529,944 and have reviewed that patent in preparing this declaration.
4. I have also read the above-identified patent application in preparing this declaration.

5. As background, EMC Corporation manufactures and sells Symmetrix disk array storage devices (DASD) to companies typically for use with multi-processor data processing centers that include, as one component, a host processor. The host processor functions with an operating system. For example, many IBM multi-processor data processing centers operate with an "MVS" operating system. An operating system issues commands according to, and in a syntax defined by, operating system protocols. Thus to write data to a DASD, an MVS operating system will issue a "write command" in such a syntax.
6. A Symmetrix DASD includes several components, namely: a host adapter, a cache, one or more disk adapters, one or more physical disk drives and an internal communications path.
7. A host adapter receives messages from and transmits acknowledgements to the host. More specifically, the host adapter receives an appropriate operating system command from a host and translates that command into one or more command sequences established by the architecture of the Symmetrix DASD. For example, the host adapter will convert a logical address received from a host to the device, cylinder and head address of a track on a specific

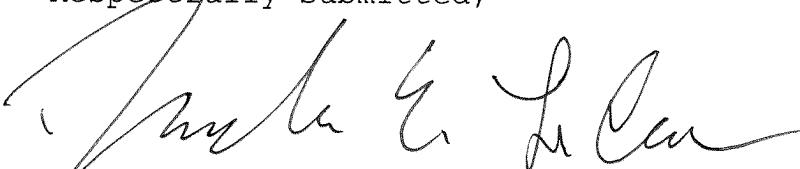
one of a multiple physical disk storage devices within the Symmetrix DASD.

8. Internal Symmetrix commands generated in response to such a command transfer to disk adapters. The disk adapters, in turn, control the function of the various disk storage devices within the Symmetrix DASD.
9. With this background, the genesis of the subject matter in my '944 patent and in the pending patent application was a 1998 requirement to provide customers with the ability to "cascade" data from one remote location to another by issuing commands from a local host wherein the local host could be at extended distances from one remote location while that one remote location was many miles from a second remote location.
10. Two groups of engineers were working on different aspects of this project. At that time my position within EMC Corporation was that of Director, zSeries Software Development. I was responsible for establishing the operating system command set that would be translated into a request to be sent to the local Symmetrix DASD. Mathieu Gagne and Yuval Ofek were charged with the conception and reduction to practice of the operations within the Symmetrix DASD that were required to perform this "cascading" operation by transferring a "cascading

command", by recognizing this command in the local Symmetrix DASD and then transferring the command to a remote Symmetrix DASD. In addition, Messrs. Gagne and Ofek also were responsible for evolving the method by which the data transfers would be made in response to those commands.

11. I was aware of the nature and sequence of the various developments in connection with this cascading development project. After some review, I recall the events surrounding this project.
12. Messrs. Gagne and Ofek conceived their invention before the January 6, 1999 filing date of the '944 patent.
13. I have also reviewed the claims in the above-identified patent application. I am not an inventor of the invention as defined in any of the claims in the above-identified patent application.

Respectfully Submitted,



DOUGLAS E. LECRONE